

[54] METHOD AND APPARATUS FOR
INDICATING SAMPLE COLLECTION
TIMES DURING WELL DRILLING

[76] Inventor: Larry J. Gunther, P.O. Box 100,
Neola, Utah 84053

[21] Appl. No.: 226,808

[22] Filed: Aug. 1, 1988

[51] Int. Cl.⁴ E21B 44/00

[52] U.S. Cl. 175/44; 175/48;
175/50; 73/153

[58] Field of Search 175/40, 44, 50, 48;
73/153, 155

[56] References Cited

U.S. PATENT DOCUMENTS

3,982,432 9/1976 Hammond 73/155
4,393,485 7/1983 Redden 367/25
4,565,086 1/1986 Orr, Jr. 73/23
4,635,735 1/1987 Crownover 175/48
4,708,212 11/1987 McAuley et al. 175/48
4,739,655 4/1988 Greer et al. 73/155

OTHER PUBLICATIONS

Anadrill Schlumberger, The Advisor System brochure,
9/86.

Data sheets on Exploration Logging, Inc.'s EXLOG
system, 1988.

Primary Examiner—Stephen J. Novosad
Assistant Examiner—Terry L. Melius
Attorney, Agent, or Firm—Mallinckrodt & Mallinckrodt

[57] ABSTRACT

A system for eliminating the need for one or more mud loggers on a drilling rig keeps track of the travel of drilling mud injected into the bottom of the well as it moves to the surface of the well with entrapped drill cuttings and gas so that for mud reaching the surface of the well, the system knows at what depth in the well the mud was injected. The system indicates to drill rig personnel when mud from preselected well depths reach the surface of the well and when to collect samples of drill cuttings strained from the mud in order to have the required samples representative of the preselected well depths. The system monitors the performance of well personnel in collecting samples by monitoring the time it takes to collect a sample after the indication that the sample should be collected. The system can also print labels to be attached to the collected samples to properly identify them and can also measure various properties of the mud reaching the surface and correlate such properties with the depth of the well from which the mud came.

22 Claims, 3 Drawing Sheets

SAMPLE COLLECTION TIMES		
SAMPLE COLLECTION TIMES FROM 12510 TO 12600 FEET		
JULY 05, 1988 - 21:05		
DEPTH	TIME OF DAY	COLLECTION TIME
DATE: 7 - 5		
12,510	16:56	1:17
12,520	17:31	0:57
12,530	17:57	3:42
12,540	18:31	MISSED
12,550	18:56	0:57
12,560	19:30	1:23
12,570	20:10	1:21
12,580	20:43	0:4
12,590	20:48	0:48
12,600	20:53	1:23